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VICTORIA DONNELLY
PO BOX 24001
HAZELDEAN RPO
KANATA, ON K2M 2C3
CANADA

EXAMINER	
KIM, DAVID S	

ART UNIT	PAPER NUMBER
2613	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/725,025	SEDDIGH ET AL.	
	Examiner	Art Unit	
	DAVID S. KIM	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *30-32,39 and 40* is/are rejected.

7)☒ Claim(s) *33-38* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Applicant's response to the rejections of claims under 35 U.S.C. 112 in the previous Office Action (mailed on 20 September 2007) is noted and appreciated. Applicant responded by amending the claims, which overcomes the previous rejections. The previous rejections are presently withdrawn. However, Applicant's amendments introduce new issues under 35 U.S.C.112.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claim 39** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Notice the following limitation in claim 39:

> storing, at said ***each*** optical node, identifiers of all adjacent optical nodes of said each optical node.

This limitation implies that this step of storing is performed at ***all*** the optical nodes of the optical network. This limitation corresponds to the teachings of Local Discovery in Applicant's disclosure. However, this step of storing at ***all*** the optical nodes is not found in the corresponding portions of Applicant's disclosure that support Local Discovery. Rather, paragraph [0037] and Fig. 7 teach that such a step of storing is performed at the ***start*** node. Performing this step of storing at the ***start*** node is not equivalent to performing this step at said ***each*** optical node, i.e., ***all*** the optical nodes. Accordingly, this limitation introduces **new matter**. As a remedy, Examiner respectfully suggests Applicant to amend this claim to more closely match Applicant's disclosure.

Also, notice the following limitation in claim 39:

> at a command-line interface communicatively coupled to said start optical node compiling a local-discovery list of identifiers of selected optical nodes *initially containing* ***only said start node***.

However, paragraph [0037], l. 16, teaches that the local-discovery list is initially ***empty***. Accordingly, this limitation introduces **new matter**. As a remedy, Examiner respectfully suggests Applicant to amend this claim to more closely match Applicant's disclosure.

Claim Objections

4. **Claims 39 and 40** are objected to because of the following informalities:

In claim 39, the last line uses "said discovery list" where "said local-discovery list" may be intended. Otherwise, antecedent basis is unclear.

In claim 40, "said target start node" is used where "said ~~target~~ start node".

In claim 40, the last line uses "said first sequence of optical nodes" where "said ~~first~~ second sequence of optical nodes" may be intended. That is, "said first sequence" corresponds to the Walk procedure (see "target lightpath" in parent claim 30, see "potential lightpath" in paragraph [0035]). However, the "global-discovery list" corresponds to the Global Discovery procedure, which is "a complement to Trace". Since the Trace procedure corresponds to "said second sequence of optical nodes", it follows that the last line in claim 40 should read "a global-discovery list for comparison with said ~~first~~ second sequence of optical nodes".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. **Claims 30, 32, and 40** are rejected under 35 U.S.C. 103(a) as being unpatentable over Carrick et al. (U.S. Patent No. 7,016,607 B1, hereinafter "Carrick") in view of Weik (*Fiber Optics Standard Dictionary, 3rd ed.*) and Rajagopalan et al. ("IP over optical networks: architectural aspects", hereinafter "Rajagopalan").

Regarding claim 30, Carrick discloses:

A method for monitoring light paths in an optical network comprising a plurality of optical nodes, each associated with a respective nodal identifier, said optical nodes interconnected by wavelength-multiplexed links and exchanging control signals through a control network, the method comprising the steps of:

modulating an optical signal of each lightpath by an identifying optical signature (e.g., pilot tones in Fig. 1);

storing (network database 176), for each lightpath planned to traverse said each optical node:

an identifier of a respective optical signature (e.g., "expected pilot tones" in col. 4, l. 26); and

identifiers of adjacent optical nodes designated to be along said each light path (e.g., "adjacent nodes" in col. 4, l. 33-39; e.g., "map the entire network" in col. 7, l. 10-11, implies some kind of storing of *every* node, which would include storing identifiers of said "adjacent nodes");

selecting a target lightpath connecting a source optical node to a destination optical node (e.g., 210 in Fig. 2) and a start optical node along said target lightpath (e.g., scanning of each node of a path in col. 4, l. 23-25, implies "selecting…a start node along said target lightpath"; e.g., "select pilot tone source" node in step 310 in Fig. 3), and:

determining a target optical signature associated with said target lightpath (e.g., "first pilot tone value" in step 310 in Fig. 3).

Carrick does not expressly disclose:

storing ***at each optical node***, for each lightpath planned to traverse said each optical node:

an identifier of a respective optical signature; and

identifiers of adjacent optical nodes designated to be along said each light path;

at a command-line interface *communicatively coupled to said start optical node*:

determining a target optical signature ***stored at said start optical node*** and associated with said target lightpath;

progressively communicating ***a first message*** *comprising* ***said target optical signature*** *to adjacent optical nodes to determine a first sequence of optical nodes designated to form said target lightpath;*

progressively communicating ***a second message*** *comprising* ***said target optical signature*** *to adjacent optical nodes to determine a second sequence of optical nodes actually receiving said target optical signature;* and

comparing *said second sequence to said first sequence.*

Regarding the limitation of "storing ***at each optical node***", Carrick's step of storing employs a database (network database 176 in Fig. 1). Carrick is relatively silent about the actual physical location of storing this database. Weik teaches that a database may be geographically distributed among several repositories ("database" on p. 186), as in a distributed database ("distributed database" on p. 242-243). Accordingly, obvious variations would include storing the database of Carrick in multiple physical locations. Obvious choices of such multiple physical locations would include the nodes of Carrick, even ***each*** node of Carrick.

Regarding the limitation of "***at a command-line interface*** *communicatively coupled to said start optical node*", notice that Carrick's method is implemented using a processor, program code, and a

computer (col. 11, l. 42 - col. 12, l. 10). A command-line interface is an obvious limitation for Carrick's method since it is an extremely common way for a practitioner to interface with a processor, program code, and a computer. Notice that the method of Carrick communicates with the start node (e.g., scanning of each node of a path in col. 4, l. 23-25, implies communicating with the "start node"). Since one could obviously interface with the method of Carrick through a command-line interface, common commands, such as running the method of Carrick, would be communicated to the various nodes, including the start node. Such communication would mean that the command-line interface would be communicatively coupled to the various nodes, including the start optical node.

Regarding the limitation of "a target optical signature ***stored at said start optical node***", notice obviousness argument above of storing the Carrick's database in ***each*** optical node. Since the target optical signature (e.g., "expected pilot tones" in col. 4, l. 26) would be in Carrick's database, the target optical signature would be ***stored*** in each optical node, including ***at said start optical node***.

Regarding the limitation of "*progressively communicating* ***a first message*** *comprising* ***said target optical signature*** *to adjacent optical nodes to determine a first sequence of optical nodes designated to form said target lightpath*", Carrick does teach the determination of "*a sequence of optical nodes designated to form said target lightpath*" ("expected order" in col. 5, l. 35-36). Carrick is relatively silent about the origin of this target lightpath. Thus, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate any suitable teachings about the origin of the target lightpath of Carrick. One of ordinary skill in the art would have been motivated to do this to provide further details about how to actually implement the method of Carrick. For example, Rajagopalan provides such suitable teachings about the origin of a target lightpath (e.g., the example of CR-LDP signaling for path establishment on p. 99-100). Moreover, Rajagopalan's teachings also include "*progressively communicating* ***a message*** (Label Request on p. 100) *comprising a target optical signature* ("path identifier" on p. 100, col. 1, last paragraph) *to adjacent optical nodes* (nodes in Fig. 6) *to determine a first sequence of optical nodes designated to form a target lightpath* (any suitable, established path in Fig. 6)". Also, notice that, since the ***target optical signature*** of Carrick is a path identifier (e.g., pilot tones in Fig. 1), it would constitute a suitable "path identifier" of Rajagopalan (p. 100,

col. 1, last paragraph). Accordingly, in view of Rajagopalan, the prior art of record would teach "*progressively communicating* ***a first message*** *comprising* ***said target optical signature*** *to adjacent optical nodes to determine a first sequence of optical nodes designated to form said target lightpath*".

Regarding the limitation of "*progressively communicating* ***a second message*** *comprising* ***said target optical signature*** *to adjacent optical nodes to determine a second sequence of optical nodes actually receiving said target optical signature*", Carrick does suggest "*progressively communicating* ***a message*** (e.g., scanning in col. 4, l. 23-25, suggests the communication of some kind of message that would prompt this scanning) *to adjacent optical nodes* (e.g., scanning of each node of a path in col. 4, l. 23-25, includes adjacent optical nodes) *to determine a second sequence of optical nodes actually receiving said target optical signature* ("actual optical path" in step 540 in Fig. 5)". Carrick does not expressly disclose that this "***message***" comprises "***said target optical signature***". Rather, this suggested "***message***" of Carrick would prompt some kind of scanning of nodes, such as scanning a node to generate a list of its detected pilot tones (e.g., scanning of each node of a path in col. 4, l. 23-25). One may characterize this scanning as the question, "What optical signatures have you received?" Then, the result is processed with results from other nodes to determine the desired "*sequence of optical nodes actually receiving said target optical signature*". Other obvious variations would include other suitable ways to provide this same desired "*sequence of optical nodes actually receiving said target optical signature*". For example, a simpler and more direct question would be, "Have you received the target optical signature?" Such a simpler and more direct way would constitute an obvious variation. In view of this simpler and more direct question, the corresponding "***message***" of Carrick would comprise "***said target optical signature***".

Regarding the limitation of "***comparing*** *said second sequence to said first sequence*", Carrick does teach "***comparing*** *said second sequence to said first sequence*" (col. 8, l. 42-44).

Regarding claim 32, Carrick in view of Weik and Rajagopalan discloses:

The method of claim 30 wherein the step of comparing comprises a further step of determining congruence of said first sequence and said second sequence to ascertain routing correctness of said target lightpath (Carrick, col. 8, l. 40-44).

Regarding claim 40, Carrick in view of Weik and Rajagopalan discloses:
The method of claim 30 further comprising:
storing at said each optical node a set of identifiers of all optical nodes in said optical network (see the obviousness argument about a "distributed database" above);

sending a message (e.g., scanning in col. 5, l. 8-11, suggests the communication of some kind of message that would prompt this scanning) from a command-line interface communicatively coupled (see the obviousness argument about the "command-line interface" above) to said start optical node to each other optical node (e.g., scanning of each node of the network in col. 5, l. 8-11), said message containing an identifier of said target optical signature (see the obviousness argument about "Have you received the target optical signature?" above), said message requesting each individual optical node which detects said target optical signature, to send a response (e.g., the prompting of the scanning of a node in col. 5, l. 8-11, constitutes a request for a response of the results of the scanning) said response including an identifier of said each individual optical node (the list of nodes in col. 5, l. 8-11 would constitute a list of identifiers of each of these nodes); and

including said identifier of said each individual optical node in a global-discovery list (e.g., "actual list" in col. 5, l. 8-11) for comparison with said first sequence of optical nodes (e.g., "comparing" in col. 8, l. 40-44).

Carrick in view of Weik and Rajagopalan does not expressly disclose:
said message containing an identifier of said target optical signature ***and an identifier of said start optical node***, said message requesting each individual optical node which detects said target optical signature, to send a response ***to said target start node*** said response including an identifier of said each individual optical node.

Rather, Carrick generally teaches control of the network through the network management services 170 in Fig. 1. Carrick is relatively silent about the actual physical location of 170. Weik teaches that one may provide control of a network from multiple points ("distributed control" on p. 242). Accordingly, obvious variations would include locating 170 in multiple physical locations. Obvious choices of such multiple physical locations would include the nodes of Carrick. Accordingly, the location of a control point node would constitute a ***start optical node***. Since control communications would flow ***from*** this start optical node, the start optical node would generally want to communicate its identity to the other nodes communicate with the start optical node. Obviously, the start optical node communicating its identity is performed through some kind of ***identifier of said start optical node*** in its control communications, i.e., messages. Similarly, since control communications would flow ***to*** this start optical node, control communications, i.e., messages would request responses to be directed ***to said start node***.

8. **Claim 31** is rejected under 35 U.S.C. 103(a) as being unpatentable over Carrick in view of Weik and Rajagopalan, as applied to the claims above, and further in view of the admitted prior art (hereinafter the "APA").

Regarding claim 31, Carrick in view of Weik and Rajagopalan does not expressly disclose:

The method of claim 30 wherein said first message and said second message are communicated through an external data network.

However, said first message and second message may be characterized as control messages, and communicating control messages through an external data network is well known, as exemplified by the APA (control network CN IP Network in Applicant's Fig. 1). Clearly, control messages would have to be communicated through some suitable means, and an external data network would constitute an obvious variation.

Allowable Subject Matter

9. **Claims 33-38** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fee et al. (U.S. Patent No. 6,980,736 B1) is cited to show the use of an expected identifying optical signature and a detected identifying optical signature (e.g., "expected supplemental signal" and "detected supplemental signal" in col. 10, l. 30-65) to track a path for an identifying optical signature (col. 11, l. 34-41). Generally, Fee et al. teaches methods for verifying correct routing of optical signals in a network (e.g., col. 1, l. 6-8).

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID S. KIM whose telephone number is (571)272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. S. K./
Examiner, Art Unit 2613

/Kenneth N Vanderpuye/
Supervisory Patent Examiner, Art Unit 2613